

REMARKS

Claims 1 through 7 are pending in this Application. Claims 1, 2 and 3 have been amended. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure as, for example, Example 1a at page 9 of the written description of the specification, line 17 through page 10, line 1, as well as, page 12 of the written description, line 20. Applicants submit that the present Amendment does not generate any new matter issue.

Clarification

Prior to addressing the formalistic issues generated by the Examiner, Applicants would refer to Example 1a, notably at page 9 of the written description of the specification commencing at line 14. This example covers claims 1, 2 and 3. In accordance with the disclosed example, a soot preform is initially inserted into a furnace tube and the furnace tube hermetically sealed with an upper cover. The pressure in the furnace is then reduced to 10 Pa. Then the surface temperature of the soot preform is increased to 1300°C. The pressure is maintained during a heating so that the gas remaining in the soot preform is thoroughly removed, i.e., degassed. Subsequently, the surface temperature of the preform is increased to a higher temperature and maintained thereat.

It should be apparent from Example 1a that the pressure was initially reduced to 10 Pa after the furnace was sealed and prior to heating the surface temperature of the preform to 1300°C. Although evacuation is continuously conducted, it is possible for the pressure to increase when the temperature is elevated to 1300°C because of gas desorption. As one having ordinary skill in the art would have understood, in order to maintain the pressure at 10 Pa after the surface temperature of the entire soot preform is increased to 1300°C, a pressure reduction

may be necessary. With the above understanding in mind, Applicants address the formalistic issues raised by the Examiner.

Withdrawal of Claim 3

Claim 3 has been amended to depend from claim 2 and merely adds the thermal shrinking step. Accordingly, claim 3 is not directed to an invention distinct from that encompassed by claim 1 or 2, but merely narrows the scope of claim 3. Accordingly, rejoinder of claim 3 is solicited.

Claims 1, 2, and 4 through 7 were rejected under the second paragraph of 35 U.S.C. 112.

In the statement of the rejection, the Examiner asserted that the “heating step of vertically inserting” renders the claimed invention indefinite. This rejection is traversed.

Claim 1 has been clarified by reciting that the first heating step comprises vertically inserting a soot preform into a furnace followed by heating the soot preform. Applicants submit that one having ordinary skill in the art would have no difficulty understanding the scope of claim 1, particularly when reasonably interpreted in light of and consistent of the written description of the specification, which is the judicial standard. *Miles Laboratories, Inc. v. Shandon, Inc.*, 997 F.2d 870, 27 USPQ2d 1123 (Fed. Cir. 1993).

Applicants, therefore, submit that the imposed rejection of claims 1, 2, and 4 through 7 under the second paragraph of 35 U.S.C. 112 is not viable and, hence, solicit withdrawal thereof.

The Examiner objected to claim 2 as improperly dependent upon a previous claim, pursuant to 37 C.F.R. §1.75(c).

This objection is traversed.

Claims 1 and 2 have been amended. Amended claim 2 limits the first heating step of claim 1 to reducing the pressure to 10 Pa or less before heating to a temperature range of 1000°C to 1300°C. Claim 2 is, therefore, completely consistent with claim 1 and further restricts claim 1 by narrowing the pressure and temperature during the first heating step.

Applicants, therefore, solicit withdrawal of the objection to claim 2.

Claims 1 and 6 were rejected under 35 U.S.C. 103 for obviousness predicated upon JP 10-81532 issued to Ishikawa¹.

This rejection is traversed.

Specifically, there is a functionally significant difference in manipulative status between the claimed methodology and Ishikawa's method that undermines the obviousness conclusion under 35 U.S.C. 103. In accordance with the method defined in independent claim 1, the second heating step is conducted within the temperature range of 1400°C to 1440°C. This manipulative step is neither disclosed nor suggested by Ishikawa.

Indeed, Ishikawa **requires** a temperature range of 1450°C to 1650°C inclusive, to transparently vitrify a porous body, noting claim 2 of Ishikawa. Moreover, Ishikawa discloses that a temperature **under 1450°C is insufficient** to vitrify a porous body, noting paragraph [0007].

¹ Applicants express appreciation for the Examiner's courtesy in promptly providing an English language translation of Ishikawa when requested.

Based upon the foregoing, it should be apparent that Ishikawa **teaches away** from the claimed invention by clearly discouraging temperatures below 1450°C. This **clear teaching** away from the claimed invention constitutes evidence of **nonobviousness**. *In re Bell*, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 6 USPQ2d 1601 (Fed. Cir. 1988); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).

Further, the above-argued difference between the claim method and Ishikawa's method is functionally significant. Specifically, Applicants' contribution stems from the discovery of **problems** attendant upon prior art practices, as discussed at page 2 of the written description of the specification, line 17 through page 3, line 3. As previously argued, Applicants **discovered** that an increase in the variation in the outer diameter in the longitudinal direction, when an optical fiberglass preform, having a length of 1,000mm or more, is treated at high temperatures, such as 1490°C to 1600°C, is significantly affected by the weight thereof. Applicants also **discovered** that if the temperature is lowered below 1490°C, and a preform is heated for one hour or less, vitrification is not complete.

The above problem basically corresponds to Ishikawa et al. However, Applicants go further by addressing and solving the problem. In accordance with the claimed invention, vitrification is conducted at a temperature of 1400°C to 1440°C, thereby avoiding undue variations in the outer diameter along the longitudinal direction, as demonstrated in the examples in the specification, and further specify that vitrification is conducted for a period of **seventy minutes or more**, to ensure complete vitrification. The concept of effecting vitrification at a temperature range of 1400°C to 1440°C is nowhere found in the applied prior art. Under such circumstances, as also previously argued, the problem addressed and solved by the claimed

invention must be given consideration as a potent indicium of **nonobviousness**. *North American Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 28 USPQ2d 1333 (Fed. Cir. 1993); *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989); *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975).

Based upon the foregoing, it should be apparent that Ishikawa et al. would not have generated a *prima facie* case of obviousness under 35 U.S.C. 103 for lack of the requisite factual basis. There is no apparent factual basis upon which to predicate the conclusion that one having ordinary skill in the art would have been realistically impelled to deviate from the expressed teachings of Ishikawa et al. to somehow arrive at the claimed invention. *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992); *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); *In re Schulpen*, 390 F.2d 1009, 157 USPQ 52 (CCPA 1968). Certainly, one having ordinary skill in the art cannot be said to have been realistically motivated to optimize a variable in a manner which is completely antithetic to Ishikawa's disclosure. *In re Fritch, supra.*; *In re Gordon, supra.*; *In re Schulpen, supra.* Further, in view of the expressed teaching away from the claimed invention by the only relied upon reference to Ishikawa, and upon giving consideration to the problem addressed and solved by the claimed invention, the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious within the meaning of 35 U.S.C. 103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984).

Applicants, therefore, submit that the imposed rejection of claims 1 and 6 under 35 U.S.C. 103 for obviousness predicated upon Ishikawa is not factually or legally viable and, hence, solicit withdrawal thereof.

Claims 4, 5 and 7 were rejected under 35 U.S.C. 103 for obviousness predicated upon Ishikawa in view of Brown.

This rejection is traversed. Specifically, claims 4, 5 and 7 depend from independent claim 1. Applicants incorporate herein the arguments previously advanced in traversing the imposed rejection of claim 1 under 35 U.S.C. 103 for obviousness predicated upon Ishikawa. The additional reference to Brown does not cure the argued deficiencies of Ishikawa. Ergo, even if the applied references are combined as suggested by the Examiner, the claimed invention would **not** result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988).

Applicants, therefore, submit that the imposed rejection of claims 4, 5 and 7 under 35 U.S.C. 103 for obviousness predicated upon Ishikawa in view of Brown is not factually or legally viable and, hence, solicit withdrawal thereof.

Based upon the foregoing, it should be apparent that the imposed objection and rejections have been overcome, and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

09/763,025

Respectfully submitted,

MCDERMOTT, WILL & EMERY

A handwritten signature in black ink, appearing to read 'MJS' followed by a stylized flourish.

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